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by

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ON ABLAUT IN CAIRO ARABIC *

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In Classical Arabic, the alternation of the vowel of the imperfect and the vowel of the perfect (ABLAUT) is systematic and follows certain well defined rules. A study of modern Arabic dialects shows that such systematic alternation is also operative in them. This paper discusses Ablaut in the non-derived verbs of Cairo Arabic by means of synchronically motivated, explicit rules. These rules are then comprared with those of Classical Arabic, with the view of identifying some of the historical changes that have taken place.

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* An abbreviated form of this paper was given at the annual meeting of the American Oriental Society in Santa Barbara, California, in March, 1973.

0. ABLAUT IN CLASSICAL ARABIC

It is a relatively well known fact, already perceived and described by the Classical Arab grammarians, that the alternation of the vowel of the imperfect vis-à-vis the vowel of the perfect in Classical Arabic, which is referred to here as ABLAUT, is systematic and follows certain well defined rules. A study of modern Arabic dialects shows that such systematic alternation is also operative in them, a fact which seems to be unnoticed by most Arabic dialectologists. It is the purpose of this paper to discuss Ablaut in the non-derived verbs of Cairo Arabic (CA), by means of synchronically motivated, explicit (though informally formulated) rules. These rules are then compared with those of Classical Arabic (ClA), with the view of identifying some of the historical changes that have taken place.

First, a very brief summary of the situation in ClA is in order. The Arab grammarians enumerated in their *ṣarf* various subtypes of non-derived verbs of ClA: *faʿula* verbs, without exception, have imperfect *yafʿulu* (e.g., /kabura, yakbura/ 'grow', /jabuna, yajbunu/[1] 'become cowardly'); *faʿila* with very few exceptions have imperfect *yafʿalu* (e.g., /šariba, yašrabu/ 'drink', /labisa, yalbasu/ 'dress'); and *faʿala* have imperfect *yafʿulu* for some and *yafʿilu* for others, with one clearly defined exception subclass of the type *faʿala, yafʿalu,* which will be discussed further down. It will be noted that except for *faʿula* and this exception subclass, the relation between stem vowel of the perfect and the imperfect is one of inverse height that can be accounted for by means of a rule (Ablaut) using α-conventions. Further, for *faʿala* verbs it is possible in a number of cases to predict the vowel of the imperfect on the basis of the consonants flanking the stem vowel. Thus, when C_2 or C_3 is a /w/, the imperfect stem vowel is /u/ without exception (e.g., /qāla, yaqūlu/ 'say', /zāra, yazūru/ 'visit', /danā, yadnū/ 'approach', /daʿā, yadʿū/ 'call'). Also, when C_2 or C_3 is a /y/, the imperfect stem vowel is /i/ (e.g., /sāra, yasīru/ 'walk', /banā, yabnī/ 'build'), but here again with one clearly defined exception subclass, where the imperfect stem vowel is /a/. We do get this exception *faʿala, yafʿalu,* as was pointed out by the Arab grammarians, when C_2 or C_3 is a laryngeal, i.e., /ḥ,ʿ,ʾ,h/ (e.g., /fataḥa, yaftaḥu/ 'open', /saʾala, yasʾalu/ 'ask', /jamaʿa, yajmaʿu/ 'collect', /nahā, yanhā/ 'forbid', /saʿā, yasʿā/ 'seek').[2] To account for this fact, one can set up a laryngeal assimilation rule, to be ordered following ablaut, that will change the high vowel to a low vowel for *faʿala* verbs in the imperfect. (As was noted earlier, medial and final /w/ verbs are impervious to this assimilation, e.g., /daʿā, yadʿū/). Such are the main lines of the situation in ClA.[3]

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[1] The notation used here is a familiar one:

stops: *b t d k g q ʾ;*

fricatives: *f θ ð s z š x γ ḥ ʿ h;*

affricate: *j;*

resonants: *n m r l w y;*

vowels: *i̱ e̱ ā o̱ ū i a u.*

Emphasis is marked by a dot under the consonant.

[2] Some exceptions to the generalization exist: a few verbs with medial /ʿ/: /saʿala, yasʿulu/, 'breathe with difficulty, cough', and /zaʿama, yazʿumu/ 'pretend' (ii) *w*-initial verbs, and (iii) a few other verbs: /nakaḥa, yankiḥu/ 'marry' (Wehr's dictionary also gives /yankaḥu/).

[3] For details see W. Wright *A Grammar of the Arabic Language,* 3rd Edition. Cambridge University Press, 1967. An excellent, penetrating study of Ablaut in Classical Arabic with formal rules is given in Michael K. Brame, *Arabic Phonology: Implications for Phonological Theory and Historical Semitics.* MIT unpublished dissertation, 1970. For purposes of ready comparison, this paper has used some of the formulations and symbols presented in the dissertation, where applicable.

In what follows, the situation in CA is discussed in detail. The first section describes the operation of Ablaut, and the second, the apparent exceptions to it; the third reexamines the formulation of Ablaut, and the fourth compares the rules of CA with those of ClA.

1. ABLAUT IN CAIRO ARABIC

There are three classes of the non-derived verb in CA, based on the stem vowel of the perfect.

(1)	PERFECT	IMPERFECT	
a.	Class U		
	xuluṣ/xiliṣ	*yixlaṣ*	'finish'
	ṭumuᶜ/ṭimiᶜ	*yiṭmaᶜ*	'be greedy'
	xumuṙ/ximiṙ	*yixmaṙ*	'ferment'
	ṣuɣuṙ/ṣiɣiṙ	*yiṣɣaṙ*	'become small'
b.	Class I		
	simiᶜ	*yismaᶜ*	'hear'
	kisib	*yiksab*	'gain'
	ʃiriħ	*yiʃraħ*	'become happy'
	širib	*yišrab*	'drink'
c.	Class A		
(i)	*daras*	*yidris*	'study'
	katab	*yiktib*	'write'
	xabaz	*yixbiz*	'bake'
	galad	*yiglid*	'lash'
(ii)	*ħakam*	*yuħkum*	'rule, sentence'
	ṭalab	*yuṭlub*	'request'
	šakaṙ	*yuškuṙ*	'thank'
	ẓalam	*yuẓlum*	'do injustice'
(iii)	*daʃaᶜ*	*yidʃaᶜ*	'pay'
	laᶜan	*yilᶜan*	'curse'
	ʃaṭaħ	*yiʃṭaħ*	'open'
	ʃaħat	*yiʃħat*	'dig'
	nahab	*yinhab*	'steal'
	nadah	*yindah*	'call'
	saʾal	*yisʾal*	'ask'

It will be noted, firstly, that Class U (i.e., CuCuC) verbs have CiCiC alternants in the perfect. An optional rule (2), to the effect that the stem vowel /u/ of the perfect may be rewritten as /i/, will account for this fact:

(2) $u \rightarrow i /$ ____ C+/perfect

where + indicates stem boundary. The constraint "in the environment perfect" is necessary since imperfect stem vowels /u/ do not change to /i/ (see examples in 1c(ii)). A second rule that assimilates the first vowel of the stem to the second vowel, will give the alternant forms *CiCiC*.

(3) $V \rightarrow V_1 / +C \_\_\_\_ CV_1C+$

This will apply to perfect stems only, since the imperfect stems have one vowel.

Secondly, in all the verbs given above other than 1c(iii) and in hundreds of others like them, there is a relation of inverse height between the stem vowel of the perfect and that of the imperfect, i.e., when that vowel is /i/ or /u/ in the perfect, it is always /a/ in imperfect, and when it is /a/ in the perfect, it is /i/ or yu/ in the imperfect. Assuming the perfect stem to be the underlying one, this vowel alternation, referred to as Ablaut, can be given as follows, using familiar α-notation:

(4) $\underset{[\alpha hi]}{V} \rightarrow \underset{[-\alpha hi]}{V} / \_\_\_\_ C+/\text{imperfect}$

In order to indicate which *CaCaC* verbs take /u/ in the imperfect and which /i/, we will mark the former with an arbitrary feature [+U]; the stem vowel of verbs so marked is changed by Ablaut to /u/ while that of verbs marked with the feature [-U] or left unmarked is changed to /i/.

Thirdly, an examination of 1c(iii) verbs, which are exceptions to (4), shows that either their C_2 or C_3 is a member of a natural class of consonants, the laryngeals: /ħ,ʿ,ʾ,h/ (henceforth L): to account for them and at the same time maintain the important generalization given in (4), we will need a laryngeal assimilation rule (henceforth L-rule):

(5) $V \rightarrow a / \left\{ \begin{matrix} L \_\_\_\_ C+ \\ C \_\_\_\_ L+ \end{matrix} \right\}$ /imperfect/Class A

i.e., the stem vowel of the imperfect for class A verbs, which by Ablaut becomes /u/ or /i/, is rewritten as /a/, when preceded or followed by a laryngeal.

Turning now to a special type of the non-derived verbs, those whose $C_3 = y$ (i.e., the *ʿam-yāʾ* verbs), we have the following subclasses corresponding to the strong verbs given above, (in order to show that $C_3 = y$, the verbal noun is given in each case):

(6)	PERFECT	IMPERFECT	VERBAL NOUN	
a.	Class U			
	ʿuṣi/ʿiṣi	*yiʿṣa*	*ʿaṣayān*	'rebel, be disobedient'
	xuzi/xizi	*yixza*	*xazy*	'be ashamed'
b.	Class I			
	nisi	*yinsa*	*nasayān*	'forget'
	diri	*yidra*	*dirāya*	'be aware'
	ṣiħi	*yiṣħa*	*ṣaħayān*	'be awake'
c.	Class A			
(i)	*ʁama*	*yiʁmi*	*ʁamy*	'throw'

	bara	*yibri*	*bary*	'sharpen'
	tana	*yitni*	*tany*	'bend'
	rafa	*yirfi*	*rafy*	'mend, darn'
(ii)	*saᶜa*	*yisᶜa*	*saᶜy*	'seek'
	raᶜa	*yirᶜa*	*raᶜy*	'tend, shepherd'
	waᶜa	*yūᶜa*	*waᶜy*	'awake, be alert'
	naha	*yinha*	*nahy*	'forbid'

Here again we note, firstly, that Class U have Class I alternants; however, there are no CuCuC verbs when C_3 = *y*, i.e., if optional rule (2) is not applied, we need a rule that fronts the back vowel.

(7) $u \rightarrow i / \_\_\_\_ y+$

If optional rule (2) is made to apply, rules (2) and (3) will give us the forms /ᶜiṣi/ as follows:

ᶜuṣuy	
ᶜuṣiy	Rule (2)
ᶜiṣiy	Rule (3)

If (2) does not apply, then (7) ordered after rule (3) will give the form /ᶜuṣi/

ᶜuṣuy	
- - - -	Rule (3)
ᶜuṣiy	Rule (7)

Secondly, *CaCay* do not have verbs corresponding to 1c(ii), i.e., there is no imperfect *yiCCay*; all *CaCay* verbs have the stem vowel /i/ in the imperfect. This can be captured by means of a redundancy rule:

(8) *CaCay* → [-U]

i.e., all *CaCay* are marked with the feature [-U] (or are unmarked with regards to the feature [U]), and thus have an /i/ as imperfect stem vowel.[4] It can be argued that the same result can be obtained by marking *CaCay* with the feature [+U], and applying rule (7). Note, however, that since the first vowel in the perfect stem always assimilates to the stem vowel, we have evidence for positing a *CuCuy* in order to account for the first vowel; no such justification exists for making the imperfect stems go through the stage *CCuy*.

Thirdly, from 6c(iii) it is clear that the laryngeal rule (5) operates here too. It will be noted that, if (8) is correct, it seems plausible to assume that Ablaut turns the stem vowel of all *CaCay* (including those with laryngeals) to /i/, only to have the laryngeal rule turn it to /a/ for *CaLay* verbs, which suggests a similar course for 1c(iii).

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[4]There are a few individual exceptions: /baqa, yibqa/ 'remain' (an alternate form /biqi/ does exist, however); /gara, yigra/ 'happen', cf. /giri, yigri/ 'run', which is also an exception to Ablaut; /laqa, yilqa/ 'find' (an alternate form /yilqi/ is known to exist); and a verb which is almost exclusively used in the imperfect /yiswa/ 'to be worth', for which the dictionaries give the perfect /sawa/: the more likely form in view of its being a stative verb is /siwi/ (cf. /qiwi, yiqwa/ 'to become strong').

2. EXCEPTIONS TO ABLAUT AND/OR LARYNGEAL ASSIMILATION

In what follows we will be dealing basically with Class A verbs; the other verbs (i.e., Class I and Class U), with very few individual exceptions,[5] regularly undergo Ablaut.

2.1. Strong Verbs

Consider the following:

(9)	PERFECT	IMPERFECT	
	taᶜab	*yitᶜib*	'tire'
	šahar	*yišhir*	'make known'
	qanaᶜ	*yiqniᶜ*	'convince'
	saᶜad	*yisᶜid*	'make happy'
	sahal	*yishil*	'cause diarrhea'
	taham	*yithim*	'accuse'
	raᶜaš	*yirᶜiš*	'frighten'
	taᶜas	*yitᶜis*	'make miserable'
	ḍaᶜaɬ	*yiḍᶜiɬ*	'weaken'

As can be readily seen, all these verbs do not undergo the L-rule, and all have /i/ for their imperfect stem vowels. Why?

In order to answer this question, it will be essential to note several points. First, these verbs have causative meaning. Second, the morphological derivatives of most of these verbs, (i.e., participles and verbal nouns), where they exist, are derivatives not of the non-derived form, but typically of derived verbs. In the following, the second column gives the participle and the third, the verbal noun corresponding to each verb (an empty slot indicates that the particular item is not in use).

(10)	PERFECT	PARTICIPLE	VERBAL NOUN	
	taᶜab	*mutᶜib*		'tire'
	šahar	- - - -	*ʾišhār*	'make known'
	sahal	*mushil*	*ʾishāl*	'cause diarrhea'
	taham	- - - -	*ʾithām*	'accuse'
	raᶜab	*murᶜib*	- - - -	'frighten'

Thirdly, many (though not all) of these verbs have alternate forms, whose pattern is *ʾaCCaC*, with identically the same meaning. Thus,

(11)				
	taᶜab	~	*ʾatᶜab*	'tire'
	šahar	~	*ʾašhar*	'make known'
	qanaᶜ	~	*ʾaqnaᶜ*	'convince'
	saᶜad	~	*ʾasᶜad*	'make happy'

[5] These exceptions are: /nizil, yinzil/ 'descend'; /libis, yilbis/ 'dress'; /misik, yimsik/ 'hold'; /giri, yigri/ 'run'; /miši, yimši/ 'walk'; /biki, yibki/ 'cry' (alternate forms /maša/ and /baka/ for the last two verbs commonly occur).

These three points immediately suggest an answer to the question raised above. Underlying most of these verbs is a derived pattern *ʾaCCaC*, which is basically causative in meaning, and which, like all derived verbs, ablauts to /i/ and does not undergo the L-rule (how this is to be accounted for in the grammar is beyond the scope of this paper). To get the desired surface forms of the perfect we need a rule, informally given as follows:

(12) *ʾaCCaC* → *CaCaC*

The data above show that Cairo Arabic is in a state of flux vis-â-vis this rule: (i) for the verbs in (11), the rule is optional; (ii) for some of the other verbs of (9), the rule is obligatory (it is essential to posit an underlying *ʾaCCaC* for such verbs in order to obtain the correct forms of their participles and verbal nouns); and (iii) a few have to be marked as [- Rule (12)], i.e., these verbs do not have a *CaCaC* alternate:

(13)	*ʾaslam*	'become Muslim'
	ʾakram	'honor'
	ʾafta	'issue a Muslim legal opinion'
	ʾazman	'become chronic'
	ʾamkan	'be possible'

But what about verbs in (9) like /raʿaš/ and others, which ablaut to /i/ and do not undergo the L-rule, but for which there seems to be no justification for positing an underlying *ʾaCCaC*, in that they have neither an alternate form in *ʾaCCaC* nor derivatives which indicate they are *ʾaCCaC* verbs? For these, the most important clue is the feature [causative], and we need the following redundancy rules:

(14) $\begin{matrix} CaCaC \\ [+\text{ causative}] \end{matrix} \rightarrow$ [-U]

(15) $\begin{matrix} \left\{ \begin{matrix} CaLaC \\ CaCaL \end{matrix} \right\} \\ [+\text{ causative}] \end{matrix} \rightarrow$ [-L-rule]

i.e., Class A verbs marked with the feature [+ causative] are marked as [-U] and those where second or third consonant is a laryngeal are marked as not undergoing the laryngeal rule.

This suggests that though phonological features and forms are in most cases the determining factors in Ablaut, in some cases at least, syntactic features play an important role.

It will be noted that Rule (12) does not overload the system, since in the majority of cases the new form does not impinge on an already existing *CaCaC* verb. In fact, a pair *CaCaC* — *CiCiC* is thus produced, with *CaCaC* the causative/transitive counterpart of *CiCiC*. Thus,

(16)	*lazam* ~ *ʾalzam*	'compel'	*lizim*	'be necessary'
	baʿad	'move far'	*biʿid*	'be far'
	rada	'please'	*ridi*	'accept'
	xafa ~ *ʾaxfa*	'hide'	*xifi*	'be hidden'
	ʿadam ~ *ʾaʿdam*	'execute'	*ʿidim*	'become ruined, annihilated'

In some cases, however, a verb reduced by (12) to *CaCaC* does impinge on an already existing *CaCaC* verb. If the verb has a laryngeal for its second or third consonant, the L-rule will operate in the case of the "original" *CaCaC*, but not in the case of the "reduced" *CaCaC*, nor of *CaCaC* verbs marked as [+causative]. Thus,

(17)	PERFECT	IMPERFECT	
	ẓahar	*yiẓhar*	'appear'
	ẓahar ~ *ʾaẓhar*	*yiẓhir*	'show'
	naha	*yinha*	'forbid'
	naha	*yinhi*	'bring to an end'

With non-laryngeal verbs, there is ambiguity. Such examples are rare.

(18)	PERFECT	(VERBAL NOUN)	IMPERFECT	
	sabat	(*sabāt*)	*yisbit*	'stand firm'
	sabat ~ *ʾasbat*	(*ʾisbāt*)	*yisbit*	'give proof'
cf.	*sibit*	(*subūt*)	*yisbat*	'be confirmed'

2.2. *w*-Initial Verbs

Consider the following:

(20)		PERFECT	IMPERFECT	
	(i)	*wagab*	*yūgib*	'become necessary'
		wazan	*yūzin*	'weigh'
		waʃa	*yūʃi*	'fulfill (a promise)'
		waṣaʃ	*yūṣiʃ*	'describe'
	(ii)	- - - -		
	(iii)	*waga^{ʿ}*	*yūga^{ʿ}*	'hurt'
		waḍa^{ʿ}	*yūḍa^{ʿ}*	'place, put'
		waqa^{ʿ}	*yūqa^{ʿ}*	'fall'
	but	*wahab*	*yūhib*	'grant'
		wahag	*yūhig*	'confuse'
		wahar	*yūhir*	'frighten'
		waham	*yūhim*	'cause to be uneasy'
		wa^{ʿ}ad	*yū^{ʿ}id*	'promise'

It is clear from 20(iii) that while *w*aCaL verbs do undergo the L-rule, *w*aLaC do not. This fact can be accounted for by means of a redundancy rule:

(21) *w*aLaC → [-L rule]

i.e., *w*-initial verbs whose medial consonant is a laryngeal do not undergo the laryngeal rule.[6] In view of the fact that most if not all of these verbs are causative, it could also be accounted for by the redunancy rule (15) given earlier.

[6]Rules (21) and (15) account for almost all the exceptions to the L-rule. A residue remains: a couple of verbs of the type Ca^{ʿ}aC have imperfect stems C^{ʿ}uC. They are: /sa^{ʿ}al, yus^{ʿ}ul/ 'cough', /qa^{ʿ}ad, yuq^{ʿ}ud/ 'sit'. These should be marked with the feature [+U].

An interesting property of *w*-initial verbs is that they never have /u/ as stem vowel of the imperfect (note the absence of verbs in 20(ii), cf.1c(ii)). This can be captured by means of a redundancy rule:

(22) *waCaC* → [-U]

i.e., all *CaCaC* with initial /w/ ablaut to /i/.

This fact and the fact that *waCaL* undergoes the L-rule seems to constitute some further evidence for the suggestion made above that the L-rule should be amended so as to apply only to verbs with /i/ as imperfect stem vowel, thus:

(23) $i \rightarrow a / \begin{Bmatrix} +\text{CCVL}+ \\ +\text{CLVC}+ \end{Bmatrix}$ /imperfect

More on this later.

2.3. Hamza-final Verbs

Consider the following examples:

(24)	*qara*	*yiqra*	'read'
	bada	*yibda*	'begin'
	mala	*yimla*	'fill'

An explanation suggests itself as to why these verbs do not have an /i/ for their imperfect stem vowel: they, like other verbs whose C_3 is a laryngeal, actually undergo the L-rule, i.e., their underlying stems have C_3 = laryngeal. But which one? An examination of the distribution of the laryngeals shows that one of them is asymmetrical in that while the others occur freely initially, medially, and finally, it does not occur finally: the glottal stop /ʾ/. Thus, positing an underlying stem with a final glottal stop explains why these verbs have an imperfect stem vowel /a/. The derivation is then as follows:

yiqraʾ	
yiqriʾ	Ablaut
yiqraʾ	L-rule

What happens to the glottal stop in final position? At first blush one might argue that a rule following the L-rule deletes it. However, an examination of conjugations of these verbs in the perfect does not support this approach. E.g.,

(25)	*bada*	'he began'
	badēt	'I began'
	badēna	'we began'

The paradigm suggests that rather than dropping the hamza, we need the following rule:

(26) ʾ → *y*/ V _____ +

Later rules, which do not concern us here, (i) raise /a/ to /e/ and assimilate /y/ to /e/ before a consonant, and (ii) delete the glide or the like, before vowel or morpheme boundary, giving the proper forms in (25) and the imperfect forms.

It will be noted that a number of verbs end in a glottal stop which is not lost in final position. In view of the discussion above and of the fact that such verbs do not undergo the

L-rule it is clear that the underlying forms of such verbs do not have a laryngeal: they have some stop /q/, which a later glottalization rule converts to a /ʾ/:

(27) $q \rightarrow ʾ$

Thus /bada/ 'begin' has underlying *$bada^ʾ$, while /sadaʾ/ 'say the truth' has *$ṣadaq$. Their imperfect forms are derived as follows:

$yi+bda^ʾ$	$yi+ṣdaq$	
$yi+bdi^ʾ$	$yi+ṣduq$	Ablaut
$yi+bda^ʾ$	- - - -	L-rule
$yi+bday$	- - - -	(26)
- - - -	$yi+ṣdu^ʾ$	(27)
$yi+bda$	- - - -	other rules

Also, the underlying *$šaqaℓ$ for /šaʾal/ 'transfer' clearly explains why the imperfect is /yušqul/, while that of /saʾal/ 'ask' (underlying *$ṣa^ʾaℓ$) is /yisʾal/.[7]

2.4. Doubled and Hollow Verbs

Consider the following examples:

(28)	PERFECT		IMPERFECT		
(i)	^ᶜadd < *^ᶜadad		$yi^ᶜidd$ < *$yi+^ᶜdid$		'count'
	$naššˇ$ < *$našaš$		$yinišš$ < *$yi+nšiš$		'fan'
	$baħħ$ < *$baħaħ$		$yibiħħ$ < *$yi+bħiħ$		'wash'
	$ša^ᶜᶜ$ < *$ša^ᶜa^ᶜ$		$yiši^ᶜᶜ$ < *$yi+š^ᶜi^ᶜ$		'shine'
	$^ᶜaḍḍ$ < *$^ᶜaḍaḍ$		$yi^ᶜuḍḍ$ < *$yi+^ᶜduḍ$		'bite'
	$kabb$ < *$kabab$		$yikubb$ < *$yi+kbub$		'pour'
	$kaħħ$ < *$kaħaħ$		$yikuħħ$ < *$yi+kħuħ$		'cough'
	$ka^ᶜᶜ$ < *$ka^ᶜa^ᶜ$		$yiku^ᶜᶜ$ < *$yi+k^ᶜu^ᶜ$		'pay'

[7] It may be asked how a speaker perceives this difference and how he can tell one from the other since phonetically there is only a glottal stop. Specifically what evidence is there for /q/? Firstly, the speaker is aware of a few forms in his own dialect where /q/ alternates with /ʾ/. Some of these pairs of alternants he uses often, to be sure, in differing socio-linguistic contexts; others he hears and recognizes, though he might use only the form with /ʾ/. Secondly, the speaker hears items with /q/ rendered by speakers of other, contiguous dialects, namely rural dialects, as /g/; this is never the case with items having /ʾ/. A Cairene speaker is exposed to this difference very early and very frequently. Thirdly, there are co-occurrence restrictions on roots in Arabic and indeed in Semitic; one is that laryngeals do not normally co-occur in a root; thus with a laryngeal in a root, we can have /q/ not /ʾ/; e.g., /ħaqad/, /qaᶜad/, /liħiq/, /saħaq/ etc. A final point that can be made is the behavior of /q/ and /ʾ/ with respect to Ablaut as illustrated above. (It is interesting to note in this respect that a few *q*-final verbs seem to undergo the L-rule like ʾ-final verbs. /ħaraq, yiħraq/ 'burn'; /saraq, yisraq/ 'steal'; the majority, however, do not (see section 3 below).

The second and fourth columns present underlying forms of the perfect and imperfect stems respectively. (This is immediately seen by comparing (28) with the strong verbs in 1c(i), (ii). The fourth column is of course not the most abstract level of representation since it is obvious that Ablaut has already applied to give the stem vowel of the imperfect.) Here as in the case of the strong verb, it is the feature [U] which determines which verbs have /u/ and which, /i/, in the imperfect.

It is clear from these examples that the L-rule is inoperative here. This can be accounted for in one of two ways:

(A) One can have a redundancy rule:

(29) CaL_1aL_1 → [-L-rule]

i.e., Class A verbs whose second and third consonants are identical laryngeals are marked as not undergoing the laryngeal assimilation rule. Or,

(B) Though the derivation and formulation is beyond the scope of this paper, some process of metathesis most probably is involved, and a Metathesis rule is needed. One can order this rule BEFORE the L-rule, in which case the latter, as formulated in (5) or (23) above, will not apply, since doubled verbs will not meet its structural description.

Now consider the following:

(30)	PERFECT			IMPERFECT			
(i)	*gāb*	≺	**gayab*	*yigīb*	≺	**yi+gyib*	'bring'
	sāb	≺	**sayab*	*yisīb*	≺	**yi+syib*	'leave'
	sāḥ	≺	**sayaḥ*	*yisīḥ*	≺	**yi+syiḥ*	'melt'
	bāᶜ	≺	**bayaᶜ*	*yibīᶜ*	≺	**yi+byiᶜ*	'sell'
(ii)	*māt*	≺	**mawat*	*yimūt*	≺	**yi+mwut*	'die'
	šāf	≺	**šawaf*	*yišūf*	≺	**yi+šwuf*	'see'
	rāḥ	≺	**rawaḥ*	*yirūḥ*	≺	**yi+rwuḥ*	'go'
	tāh	≺	**tawah*	*yitūh*	≺	**yi+twuh*	'go astray'

Here also the second and fourth columns present underlying forms of the perfect and imperfect respectively. The quality of the glide is determined either from the CaC_1C_1aC form corresponding to the verb in question (e.g., for /sāb/, /rāḥ/ we have /sayyib/, /rawwaḥ/, respectively) or from the verbal noun of the verb (e.g., the verbal nouns of /bāᶜ/, /māt/ are respectively /bēᶜ/ (*bayᶜ) and /mōt/ (*mawt)). Again, the fourth column is not the most abstract representation, since it is obvious that Ablaut has already applied. Here, however, the vowel of the imperfect is determined exclusively by the medial consonant: when C_2 is /y/, it is invariably /i/, when /w/, it is /u/, no matter what C_3 is. This can be accounted for by means of a redundancy rule using the feature [U]. Thus,

(31) *CawaC* → [+U]

(32) *CayaC* → [-U]

It will be seen that as in (28) above, the L-rule is inoperative in hollow verbs also. Suggestions similar to those given for the doubled verbs will account for this fact:

(A) One can have a redundancy rule:

(33) CaGaL → [-L-rule]

i.e., Class A verbs whose second consonant is a glide (G) and whose third is a laryngeal are marked as not undergoing the laryngeal assimilation rule. Or,

(B) Here again, a metathesis process is most probably involved, and ordering the metathesis rule before the L-rule will insure that the latter is inapplicable.

These two solutions will be further discussed below.

Though our concern in this section is with Class A verbs, i.e., with CaCaC, it is worth noting that there are CiCiC doubled and hollow verbs.

(34)

PERFECT		IMPERFECT		
nām	< **nawim*	*yi+nām*	< **yi+nwam*	'sleep'
bāt	< **bayit*	*yi+bāt*	< **yi+byat*	'spend the night'
ṣaħħ	< **ṣaħiħ*	*yi+ṣaħħ*	< **y+ṣħaħ*	'be proper'

That these have a perfect stem vowel /i/ is clearly demonstrated by the fact that the imperfect stem is /a/ by Ablaut. Note that in this case the first vowel in the perfect stem has to be /a/ as it will be impossible to derive the actual forms of the verb /nām/ etc. from **niwim*. It thus becomes essential to have more abstract representations CaCiC and CaCuC for actual CiCiC and CuCuC respectively. Rule (3) above will ultimately give us the correct forms.

Before leaving this subject, we should note two classes of medial glide verbs that do not behave like the verbs discussed so far in this section.

The first consists of verbs whose roots are of the type CGG (the so called doubly weak verbs) and is illustrated below:

(35)

PERFECT	IMPERFECT				
kawa	*yikwi*	'iron'	cf.	*kawy*	'ironing'
ɬawa	*yiɬwi*	'bend'		*ɬawy*	'bending'
nawa	*yinwi*	'intend'		*niyya*	'intention'
ħiyi	*yiħya*	'live'		*ħiwān*	'animal'
ʿiyi	*yiʿya*	'become sick'		*ʿayyān*	'sick'
qiwi	*yiqwa*	'become strong'		*quwwa*	'strength'

In these verbs, unlike those in (30), the medial glide is maintained throughout the perfect and imperfect paradigms. It will be noted that the Class A verbs in (35), which are clearly Caway, have /i/ for the imperfect stem vowel. This is exactly what rule (8) above predicts. However, rule (31), which assigns a /u/ for medial /w/ verbs, is also applicable here. This is discussed further below.

The second class of verbs with medial glide that do not behave like those in (30) is illustrated by the following:

(36)

PERFECT	IMPERFECT				
xawat	*yixwit*	'annoy'	cf.	*ʾaxwat*	'crazy'
ʿawag	*yiʿwig*	'bend'		*ʾaʿwag*	'crooked'
hawas	*yihwis*	'disturb'		*ʾahwas*	'silly'

ʕawaħ	*yiʕwiħ*	'cause neck to be stiff'
dawax	*yidwix*	'make giddy'
dawaš	*yidwiš*	'drive crazy by noise'
xayaʕ	*yixyiʕ*	'confuse, bewilder'
ziwir	*yizwar*	'choke'
ṭiwiʕ	*yiṭwaʕ*	'be tall'

Here again, the medial glide is maintained throughout the paradigms. It will be noted that the Class A verbs above are causative and denote 'to cause a defect', which explains why the stem vowel in the imperfect is /i/ and the L-rule is inoperative (rules (14) and (15) above).

The fact that roots of the type CGC that denote bodily or mental defects and CGG roots always maintain the glide, can be accounted for by assuming they do not undergo Metathesis, i.e., by the following redundancy rules:

(37) CGG → [-Met]

(38) $\underset{[\text{defect}]}{\text{CGC}} \rightarrow$ [-Met]

2.5. *w*-Final Verbs

The following are the subclasses of verbs whose $C_3 = w$, corresponding to (1) and (6) (the verbal noun is given in each case to show that the root has $C_3 = w$).

(39)	PERFECT	IMPERFECT	VERBAL NOUN	
a.	Class U			
	suhi/sihi	*yisha*	*sahw*	'be oblivious, unaware'
b.	Class I			
	ħili	*yiħla*	*ħalāwa/ħilw*	'be sweet'
	qisi	*yiqsa*	*qasāwa*	'be hard'
	ɣili	*yiɣla*	*ɣuluww*	'become expensive'
c.	Class A			
(i)	*ᶜafa*	*yiᶜfi*	*ᶜafw*	'pardon'
	laɣa	*yilɣi*	*laɣw*	'cancel'
(ii)	- - - -			
(iii)	*daᶜa*	*yidᶜi*	*daᶜwa*	'invite'
	maħa	*yimħi*	*maħw*	'erase'
	laha	*yilhi*	*lahw*	'provide diversion'

It will be noted that these verbs behave similarly to *y*-final verbs, and it seems that a very early general rule can account for all the facts:

(40) $w \rightarrow y \;/\; V \_\_\_\_ +$

i.e., a final /w/ is rewritten as /y/ when preceded by a short vowel (this condition is essential since /w/ is maintained elsewhere as witnessed by the verbal nouns above). This rule and Rule (7) motivated earlier, will give the correct form /suhi/ from *ʂuhuw, /ħili/ from *ħiliw, etc. In one important respect, however, *w*-final verbs differ from *y*-final ones: exactly as in C1A, when C_2 = L, the latter undergo the L-rule, but the former do not (cf. (39)c(iii) with 6c(iii)). How is one to account for this anomaly? A number of suggestions can be given:

(A) One can have a redundancy rule

(41) *CaLaw* → [-L-rule]

i.e., that *w*-final verbs whose C_2 is a laryngeal do not undergo laryngeal assimilation.

(B) Since the L-rule applies in the case of C_3 = *y* where the stem vowel of the imperfect is /i/, one could use the L-rule given in (23) and assume that *w*-final verbs have imperfect stem vowel /u/ (in which case (23) would be inapplicable). This can be done either

(i) by marking *CaCaw* verbs with the feature [+U], i.e., having Ablaut change the stem vowel of the perfect to /u/, or

(ii) by marking *CaCaw* verbs, like *CaCay*, with the feature [-U], i.e., having Ablaut change the stem vowel to /i/, and adding the following rule to the grammar:

(42) *i* → *u* / _____ *w* +

Some independent justification for (42) can be found in the fact that a similar rule is needed for deriving the imperfects of *w*-initial verbs, such as /yūqaf/ from underlying *yi+wqaf (see (20) above). It will be noted, however, that (42) operates within a stem while the latter rule uses segments from outside the stem. It is also unsatisfactory to change /a/ to /i/, only to change it back to /u/ later; hence (ii) is rejected. The derivation which uses (B) is as follows:

yidᶜaw	
yidᶜuw	Ablaut
- - - -	L-rule (formation (23))
yidᶜuy	*w* → *y* (Rule (40))
yidᶜiy	*u* → *i* /_____ *y* (Rule (7))

The trouble with solution B is that while it works for C1A, where *CaCaw* have *yaCCuw* for their imperfect, it seems quite ad hoc here, since there is no direct evidence for it in Cairo Arabic. The evidence is at best indirect: that *CayaC* and *CaCay* have imperfect stems vowel /i/, *CawaC* has and (therefore it is likely that) *CaCaw* has, /u/.

(C) One can mark all *CaLaG* verbs as exceptions to the L-rule, and mark *CaLay* verbs as undergoing it.

It will be noted that if either of the above three solutions is adopted, the *w* → *y* rule (Rule (40)) cannot be an early rule, as it must follow Ablaut. It will then be collapsed with Rule (26) to give

(43) $\left\{ \begin{matrix} ɔ \\ w \end{matrix} \right\}$ → *y* / V _____ +

(D) Finally, one can mark each verb in 39c(iii) as an exception to the L-rule.

It can be argued in favor of solution D that (i) it eliminates rule (41) altogether, whereas solution C merely substitutes the following rule for it:

(44) CaLaG → [-L-rule]

(with this rule, however, there is some kind of generalization that can be made from the fact that GaLaC (though NOT CaCaL), CaGaL, and CaLaG are all [-L-rule].), (ii) there are statistically very few CaLaw verbs, and (iii) most importantly, perhaps, it obviates the need for the /w/ part of Rule (43). If, further, the statistically few verbs that undergo the L-rule by virtue of a posited underlying final /ʾ/ are now treated as final /y/ verbs but marked with the feature [+L-rule], then all of Rule (43) is eliminated, as a later, ordered rule, and is replaced by an early rule, preceding Ablaut,

(45) *w* → *y* / V _____ + (=40)

The grammar that adopts solution D is simpler and probably more easily learnable by a native speaker, if only because of a statistical consideration, i.e., there are only eight or so items involved and hence it is presumably costlier to internalize an ordered rule than to learn a few exceptions. An important question immediately arises, however; at what point does it become less costly to internalize a rule? Fifteen, twenty, fifty exceptions? Phonological theory that takes perception strategies into consideration does not for the moment provide an answer.

Given this solution, the Ablaut-related rules so far motivated for Cairo Arabic are as follows:

(46) Phonological rules

a.	*u* → *i* / _____ C+/perfect	(= (2) above)
b.	V → V_1/ +C _____ CV_1C+ /	(= (3) above)
c.	*w* → *y* / V _____ +	(= (45))
d.	*u* → *i* / _____ *y*+	(= (7))
e.	Metathesis	
f.	Ablaut	(= (4))
g.	L-rule	(= (5) or (23))
h.	*q* → ʾ	(= (27))
i.	ʾaCCaC → CaCaC	(= (12))

(47) Redundancy rules related to Ablaut

a.	*wa*CaC → [-U]	(= (22))
b.	CaC*ay* → [-U]	(= (8))
c.	C*aya*C → [-U]	(= (32))
d.	C*awa*C → [+U]	(= (31))
e.	C*away* → [-U]	(= (8))
f.	CaCaC → [-U] [+ causative]	(= (14))

(48) Redundancy rules related to L-rule

a. *waLaC* → [-L-rule] (= (21))

b. $\left\{\begin{matrix}CaLaC\\CaCaL\end{matrix}\right\}$ → [-L-rule[(= (15))
[+ causative]

c. CaL_1aL_1 → [-L-rule] (= (29))

d. *CaGaL* → [-L-rule] (= (33))

(49) Redundancy rules related to Metathesis

a. CGG → [-Met] (= (37))

b. CGC → [-Met] (= (38))
[defect]

It should be noted that ordering Metathesis before the L-rule, as suggested in section 2.4, would eliminate rules (48c) and (48d), since doubled and hollow verbs, which undergo metathesis, will not meet this structural description of the L-rule.

3. THE FEATURE [U]

In section 1 above, an arbitrary feature [U] was used to indicate which *CaCaC* verbs have their imperfect stem vowel as /u/ and which as /i/.

We will now reexamine the need for such a feature. Once the findings of the previous sections are assumed, a number of important predictions as to the quality of the imperfect stem vowels of *CaCaC* verbs can be made, based on the phonological nature of the flanking consonant.[8]

Thus, that stem vowel is (1) /u/ when C_2 or C_3 (or both[9]) is an "emphatic" (/ṣ ḍ ṭ ẓ/), a velar stop (/k g/), or a uvular fricative (/x ɣ/), referred to collectively as "back" consonants (henceforth B):

(50)

PERFECT	IMPERFECT	
rabaṭ	*yurbuṭ*	'tie'
laḍam	*yulḍum*	'thread'
šabak	*yušbuk*	'hook'
laqaʃ	*yulquʃ*	'catch'
naʃax	*yunʃux*	'blow'
naɣaz	*yunɣuz*	'prick'
laʃaẓ	*yulʃuẓ*	'pronounce'
naṣab	*yunṣub*	'pitch (a tent)'

[8]We need to posit a final /w/ to account for the form of the verbal nouns. There are examples of these where the /w/ alternates with /y/, which might indicate a trend towards a complete merger of final /w/ with /y/, just as there has been merger of final /ʾ/ with /y/ (except as noted above).

[9]When both consonants are from the same class, they must be identical. Thus we never get the following roots: *Ckq* or *Cxɣ* or *Cdṭ*, *Czṣ*, *Cbʃ* etc.

or when C_1 is an "emphatic" (henceforth E):

(51)	*ẓalam*	*yuẓlum*	'oppress'
	ṣamad	*yuṣmud*	'withstand'
	ṭalab	*yuṭlub*	'ask'
	ṣadaf	*yuṣduf*	'happen'

and (2) /i/, elsewhere, i.e., when C_2 and C_3 (or both[9]) is a "plain" or "front" consonant (henceforth F):

(52)	*katab*	*yiktib*	'write'
	rafat	*yirfit*	'expell'
	ħamad	*yiħmid*	'praise'
	kašaf	*yikši f*	'uncover'
	ħasad	*yiħsid*	'envy'

These can be summarized informally in the following redundancy rules[10]:

(53) a. CaBaC → [+U]
b. CaCaB → [+U]
c. EaCaB → [+U]
d. CaFaF → [-U]

One consonant is anamalous with respect to (53): the alveolar trill /r/. In final position it behaves like a B in that the imperfect stem vowel of CaCaC verbs with final /r/ is /u/:

(54)	*kafar*	*yukfur*	'renege'
	ᶜabar	*yuᶜbur*	'cross'
	xarr	*yuxurr*	'leak'
	ʾamar	*yuʾmur*	'command'

The imperfect stem vowel of CaCaC verbs with medial /r/, however, can be either /u/ or /i/. When the former is the case, C_3 in the large majority of cases is B, which is accounted for by (53b); when the latter is the case, C_3 is F, which is accounted for by Rule (53d)[11].

(55)	*šaraṭ*	*yušruṭ*	'put a condition'
	farak	*yufruk*	'rub'
	faraz	*yifriz*	'separate'
	ɣaras	*yiɣris*	'plant'

[10]Though these rules apply to a large number of verbs, there are, of course, the proverbial exceptions, in each case.

[11]There are no co-occurrence restrictions of /r/ with any of the aforementioned classes, in roots.

The consonant /r/ behaves anomalously with respect to "emphasis" too. Thus, like the emphatics, it can impart "emphasis" to contiguous vowels and consonants. Unlike them, however, it can co-occur contiguous to other emphatics in the same root, and it loses its "emphasis" when contiguous to the high front vowel:

(56)	*šaḳaṛ*	*yuškuṛ*	'thank'
but	*šakrīn*	*šākiṛ*	'thanking'
cf.	*ṣaʃaṭ*	*yuṣʃuṭ*	'suck'
	ṣaʃṭīn	*ṣāʃiṭ*	'sucking'

It is to be noted that a final /r/ in a CaCaC verb is always pronounced "emphatic." This is not always the case in medial /r/ (it is, of course, when C_1 or C_3 is one of the emphatics). Thus,

(57)	*šakaṛ*	'thank'
	naʃaṛ	'resent'
	baraz	'become prominent'
	daras	'study'
	ṣaṛax	'shout'

Two points related to (53) should be carefully observed: no matter what the other consonants are, when applicable, (a) all these verbs must undergo the laryngeal assimilation rule, i.e., when C_2 or C_3 is a laryngeal, and (b) the redundancy rules (47a-d, and f) apply in every case, i.e., *w*-initial, glide-medial, *y*-final, and causative verbs, always ablaut to /i/.

How is (53) then to be incorporated in the grammar of Cairo Arabic? A number of suggestions can be made:

A. Rule (53) can be constrained by specifying that C_1 cannot be /w/, C_2 cannot be /w/ or /y/, C_3 cannot be /y/ and the verb must be [-causative].

B. The redundancy rules (47) and (53) can be ordered disjunctively, i.e., Rule (47) applies first, then (53), but only if Rule (47) does not.

C. It is clear that Rules (53a, b, and d) reflect an assimilation process: the imperfect stem vowel assimilates the feature "back" from flanking consonants. The most natural solution, would be to set up a stem vowel assimilation rule following Ablaut, roughly as follows:

(58) a. $$a \rightarrow u \;/\; \left\{ \begin{array}{ll} C \_\_\_\_ & \left\{ \begin{array}{l} B \\ r \end{array} \right\} \\ B \_\_\_\_ & C \end{array} \right\} \text{ +/imperfect}$$

b. $a \rightarrow i$ / elsewhere/imperfect

i.e., the imperfect stem vowel is /u/ when preceded by a back consonant or followed by a back consonant or an /r/; elsewhere it is /i/.

Incorporating Rule (58) in the grammar will mean that the arbitrary feature [U] is no longer needed and imply the following:

(1) It must follow Ablaut. The latter is still an inverse height rule, formulated as in (4), but it is Rule (58) which specifies whether the imperfect stem vowel is /u/ or /i/.

(2) Redundancy Rules (47c) and (47d), which, it will be remembered, state that the stem vowel is /i/ or /u/ when the medial glide is /y/ or /w/ respectively, clearly represent an assimilation process, and can be easily handled by means of a stem vowel assimilation rule. In view of the fact that assimilation to the medial glide will take place no matter what C_3 is, this stem vowel assimilation rule should apply disjunctively first in the case of the medial glide, then to back consonants, but only if there are no medial glides.

(3) Another redundancy rule which reflects an assimilation process is Rule (47b), which will also be handled by having the stem vowel assimilation rule apply equally to medial and final glide, with no particular order specified. This, however, would run contrary to redundancy Rule (47e) which asserts that in the case of doubly weak verbs, the stem vowel assimilates to the glide in C_3 and not in C_2. It thus seems necessary to specify that the stem vowel assimilation rule should apply disjunctively as follows:

(59) $a \rightarrow \left\{ \begin{array}{ll} \text{a.} & i \;/\; \underline{\quad} \; y+ \\ \text{b.} & \begin{bmatrix} i \\ u \end{bmatrix} / \begin{bmatrix} y \\ w \end{bmatrix} \; \underline{\quad} \; \text{C+} \\ \text{c.} & u \;/\; \left[\begin{array}{ll} \text{C} \; \underline{\quad} & \left\{ \begin{matrix} \text{B} \\ \text{r} \end{matrix} \right\} + \\ \text{B} \; \underline{\quad} & \text{C+} \end{array} \right] \\ \text{d.} & i \;/\; \text{elsewhere} \end{array} \right\}$

i.e., if a *CaCaC* verb has a final glide, its imperfect stem vowel is /i/; if such a verb has no final glide but a medial glide, its imperfect stem vowel is the homorganic vowel; if it has no glides in C_2 or C_3 its imperfect stem vowel is /u/ when followed by a back consonant or an /r/ or preceded by a back consonant; for other *CaCaC* verbs the vowel is /i/.

(4) The formulation of Rule (59) implies that it must precede Metathesis, otherwise it will be impossible to assign the proper imperfect stem vowel to hollow and doubled verbs, since after metathesis they will not meet the structural description of (59).

(5) Since the L-rule follows (59), it now changes any high vowel, not only /i/, to /a/, i.e., the laryngeal assimilation rule will take the form as given in (5) above, not as in (23).

(6) It is obvious that the L-rule is a candidate for collapsing with Rule (59), being itself an assimilation rule, albeit specifying a "height" rather than a "backness" assimilation. In the absence of evidence from further data, including hard evidence for the relative ordering of Metathesis, this will not be attempted.

(7) Since the feature [U] has been eliminated, the remaining redundancy rules of (47) have now to be reformulated as follows:

(60) $a \rightarrow i \;/\; \left\{ \begin{matrix} wC\_\_C \\ +\ CC\_\_C \end{matrix} \right\}$ +/imperfect
[+causative]

(8) Though this is beyond the scope of the paper, it should be mentioned that in hollow verbs, stem vowel assimilation applies not only in the imperfect but also in the second and first persons of the perfect. Rule (59) can incorporate that type of assimilation and can thus capture this important generalization which (47) misses altogether.

Here now is the final set of ablaut-related rules in Cairo Arabic, motivated in this paper.

(61) Phonological rules:

a. *u* → *i* / _____ C+/perfect

b. V → V_1 / +C _____ CV_1C+

c. *w* → *y* / V _____ +

d. *u* → *i* / _____ *y*+

e. Ablaut

f. Stem-vowel assimilation

g. Metathesis

h. Laryngeal assimilation

i. *q* → ʾ

j. ʾ*a*CC*a*C → C*a*C*a*C

(62) Redundancy rules:

a. *a* → *i* / +*w*C _____ C+/ imperfect

b. *a* → *i* / +CC _____ C+/ imperfect
[+ causative]

c. *a* → *u* / +EC _____ C+/ imperfect

d. *waLaC* → [-L-rule]

e. $\left\{ \begin{matrix} CaLaC \\ CaCaL \end{matrix} \right\}$ → [-L-rule]
[+ causative]

f. CGG → [-Metathesis]

g. CGC → [-Metathesis]
[defect]

4. COMPARISON WITH CLASSICAL ARABIC

A number of very interesting points can be made when the rules related to Ablaut are compared in CA and ClA.

(1) CA has added a number of rules which do not exist in ClA: (61a, b, i, j). The first two are not strictly related to Ablaut since they apply to the perfect. CA is one of the few dialects of Arabic that have maintained a *CuCuC* form (with an optional *CiCiC*). Rule (61b) is very widespread, however. So is Rule (61i), though the reflexes of the uvular stop of ClA are varied, the glottal catch being typical in urban dialects. ʾ*a*CC*a*C is productive in bedouin dialects only.

(2) CA generalizes the *w* → *y* rule, which in ClA either applied to derived verbs only, or else had the constraint "after *i*" put on it. The rule was the subject of discussion in 2.5 above; it will be remembered that the formulation of the rule is given as (61c) rather than (43)) not because the *w*-final verbs behave in all respects as *y*-final verbs, but because those that do not are few in number and hence are marked as "exceptions." Thus item attrition in a language or dialect becomes a factor in the formulation and ordering of rules. The discussion of the *w* → *y* rule, seems to be pertinent to other dialects.

(3) This article has demonstrated that Ablaut operates in CA. It should be noted, however, that its formulation is different in ClA than it is in CA; in the former *ʃaᶜula* type verbs have to be excluded from the Ablaut rule, because their imperfect stem vowel is always /u/. CA generalizes the inverse height rule of Ablaut to all verbs.

(4) Though there is some predictability in ClA as to the imperfect stem vowel of some verbs, in terms of the flanking vowel (in the case of medial- and final-glide verbs), there is no evidence for a rule like (58) in ClA. In view of the composite nature of ClA, more research, especially on attested ancient dialects, needs to be undertaken, in order to determine whether the situation in CA is the result of historical development.

(5) The redundancy rules of CA are strikingly similar to those of ClA: Rules (47a-e), (48a, c, d), and (49a, b) are all attested in ClA. The following additional points should be made.

(a) ClA has at least one more redundancy rule, which does not exist in CA because of item attrition:

(56) $waCa \begin{Bmatrix} ħ \\ h \end{Bmatrix} \rightarrow$ [-L-rule]

No examples of such verbs exist in CA.

(b) There are a few verbs in ClA which are aberrant in their behavior, and it is interesting to note that those that are still in use in CA are also aberrant. This is true of the few *CaᶜaC* that have *CᶜuC* for their imperfect stem (see footnote 3).

On the other hand, other verbs which were aberrant in ClA are regular in CA. Thus (i) the verb /wahab/ 'give' in ClA is an exception to redundancy Rule (62c) but not in CA, and (ii) the verb /wariθ/ 'inherit' and a couple of other *waCiC* verbs have their imperfect stem as /i/ in ClA. Only the first is attested in CA, and it is regular, i.e., it has /a/ for its imperfect stem vowel.

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AAD 3 - **Semitic:** *DAMASCUS ARABIC* by Arne Ambros. In preparation.

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